Fisheries and Oceans Science | Pêches et Océans Sciences

CSAS | SCSC

Canadian Science Advisory Secretariat | Secrétariat consultatif scientifique du Canada

Proceedings Series 2001/26 | Série des compte rendus 2001/26

Proceedings of the RAP Meeting on Rat River Dolly Varden

6-7 February, 2001
Freshwater Institute, Winnipeg, MB

Susan Cosens and Larry Dueck, Chairpersons

Department of Fisheries and Oceans
501 University Crescent
Winnipeg, MB
R3T 2N6

October 2001 / Octobre 2001

Canada

102-01315/

Table of Contents

Abstract 3

Résumé 3

Introduction 4

Species Biology 4

The Fishery 5

Resource User Perspective 5

Resource Status 6

  Stock Delineation 6

  Stock Size 6

  Stock Trend 7

Sustainable Harvesting Rate 8

Outlook 8

Sources of Uncertainty 8

Management Considerations 8

Other Considerations 8

Concluding Remarks 9

Appendix 1. A summary description of the Central and Arctic Regional Advisory Process (RAP) 10

Appendix 2. Remit for the RAP Meeting on Rat River Dolly Varden 13

Appendix 3. Rat River Dolly Varden RAP meeting - Proposed Agenda 14

Appendix 4. List of Working Papers for the RAP meeting on Rat River Dolly Varden 15

Appendix 5. Participants List 16

Abstract

Participants from the Department of Fisheries and Oceans, Fisheries Joint Management Committee, Gwich'in Renewable Resources Board, resource users, and the private sector met in Winnipeg on February 6-7, 2001 to participate in the Regional Advisory Process (RAP) on the stock status of Rat River Dolly Varden. The purpose of the RAP was to review the data available for this stock, based on both scientific and traditional knowledge. Working papers were tabled and overviews of three of these papers were presented for discussion. Based on stock size estimates, age class structure and other biological indicators, the stock was thought to be stable, if not increasing in size. The populations of the northern form of Dolly Varden that occur in Arctic Canada (Firth River, Joe Creek, Babbage River, Big Fish River, Rat River and Vittrekwa River) represent the only known populations of this distinct taxon in Canada. Thus, these fish are a unique part of the Canadian fish fauna and conservation and management of these populations and their habitats are high priorities. Continued monitoring of the Rat River stock was recommended.

Résumé

Des représentants du ministère des Pêches et des Océans, du Comité de gestion de la pêche, du Conseil des ressources renouvelables Gwich'in, des utilisateurs de la ressource et du secteur privé se sont réunis à Winnipeg les 6 et 7 février 2001 pour participer au processus de consultation régionale (PCR) sur l'état du stock de Dolly Varden de la rivière Rat. Le but était de passer en revue les données disponibles sur ce stock, reposant tant sur des connaissances scientifiques que traditionnelles. Des synthèses de trois des documents de travail déposés ont été présentées aux fins de discussion. Après avoir examiné des estimations de la taille du stock, la structure des classes d'âge et d'autres indicateurs biologiques, les intervenants ont conclu que le stock est stable, et peut-être même à la hausse. Les populations de la forme nordique de la Dolly Varden retrouvées dans l'Arctique canadien (rivière Firth, ruisseau Joe, rivière Babbage, rivière Big Fish, rivière Rat et rivière Vittrekwa) sont les seules représentantes de ce taxon distinct au Canada. Comme elles constituent donc un élément unique de la faune ichtyologique canadienne, la conservation et la gestion de ces populations et de leurs habitats sont des priorités hautes. Les participants ont recommandé que le stock de la rivière Rat soit l'objet d'une surveillance soutenue.

Introduction

The Regional Advisory Process (RAP) meeting to evaluate the status of Rat River Dolly Varden was held at the Freshwater Institute on February 6 and 7, 2001. Participants included personnel from DFO Science, DFO Management, Fisheries Joint Management Committee (FJMC), Gwich'in Renewable Resource Board and resource users and harvesting monitors from the communities of Aklavik and Fort MacPherson.

The meeting began at 9:05, February 6. The RAP Coordinator (Larry Dueck) welcomed participants, and introduced himself and the chair for the meeting (Susan Cosens). Prior to the start of meeting, an opening prayer was given by Billy Day.

The RAP Co-ordinator then provided a brief description of the principles, guidelines, objectives and intended products of the Regional Advisory Process, following the summary provided in the document "*What is RAP?*" (Appendix 1). A revised Remit (Appendix 2) and proposed agenda (Appendix 3) were distributed, and new Working Papers (#6-8) were made available. A complete list of Working Papers for the meeting is provided in Appendix 4. Sample Stock Status Reports and Proceedings documents were also available for viewing.

Participants were invited to introduce themselves (see Appendix 5 for participant list). The Chair then described the general nature of the work participants would be doing to review the Stock Status Report (SSR), and the approach that would be taken. She encouraged all participants to keep the objectives in mind and to focus on the items in the Remit.

The Proceedings below are arranged by section, following the outline of the draft SSR. Where possible, major points have been presented by combining threads of discussion by common subject, rather than following a strict chronological documentation of the discussion.

Species Biology

The discussion opened with a question as to whether the correct spelling of the common name "char" used one "r" or two. Some historical perspective was provided, indicating that the American Fisheries Society had accepted the practice of using one "r" and that this was now the official DFO position. It was further clarified that *Salvelinus malma* is properly referred to as simply "Dolly Varden", not "Dolly Varden Char".

The need for additional detail, in particular the inclusion of Vittrekwa River and Joe Creek, on the map depicting the river systems and fishing sites was indicated. It was suggested that the Gwich'in term for Dolly Varden be moved to the background section and that the term used by the Inuvialuit should also be included.

There was considerable discussion of the different life history forms of Dolly Varden (anadromous and residual), distinctions between northern and southern forms of Dolly Varden, and aspects of spawning behaviour. It was suggested that the word "externally" be used as a qualifier before describing the morphological characteristics that distinguish them from Arctic char.

There was a general discussion and clarification of scientific information on spawning frequency, noting that Dolly Varden spawn every two years in "most", but not all river systems. It was suggested that wording in the SSR should reflect the fact that knowledge on spawning frequency is for the species in general and not for the Rat River stock specifically, and should include statements about the uncertainty regarding the precise spawning frequency for this stock. Clarification of data regarding the proportion of Dolly Varden that spawn in consecutive years was provided. It was suggested that spawning should be referenced with respect to a given length, rather than age class. The description of the role of residual (non-migratory) males was noted to include the term "satellites", which might not be widely understood by readers; alternative terms or wording were suggested.

The chair asked if the subsequent paragraphs describing the two different groups of spawners (lines 64-91), might have too much detail. It was acknowledged that there was considerable detail here, but that

the information on mortality, time of first spawning and re-spawning were important aspects of species biology. Minor changes were made to clarify meanings and remove redundancy.

It was noted that the paragraph describing maximum ages of Dolly Varden (lines 93-99) was not specific to the stock under examination. There was some discussion of length-at-age for the species, noting that ages tend to be greater in systems other than the Rat River. It was agreed that the paragraph could be omitted, since it did not contribute relevant information on species biology that was not already covered elsewhere in this section.

It was agreed that the material in the sub-section entitled Critical Habitat was worthwhile to include in the SSR. Spawning and over-winter habitats appear to be limiting Dolly Varden populations for three possible reasons: frequent siltation events in high gradient rivers, the availability of open water throughout the winter and the availability of oxygenated water to maintain eggs throughout the winter. This information could also be included in "Other Considerations" or "Management Considerations". In the end, it was agreed that this information would remain under Species Biology with the subtitle "Description of Habitat".

The material in the subsection entitled "Feeding" was shortened by removing references to feeding in Alaskan stocks, and merged with the previous section on species biology.

The Fishery

A general description of the mixed stock fishery was provided, indicating the five main fishing sites in the Rat River, as well as the fishers and monitors involved. Additional information regarding the species range, distribution and mixing with other stocks along the coast was given. It was noted that a reference to the possibility that Alaskan stocks may be taken in the fishery should also be provided in this section.

Corrections to mesh sizes in metric units were provided. It was noted that the 3 ½" mesh size is no longer used as a result of recommendations in the Rat River Char Fishing Plan. It was suggested that this information be included in the SSR.

There was some discussion of the Vittrekwa River (tributary of the Peel R.) component of the fishery and the implications of the presence of Vittrekwa fish on the Rat River harvest data. Information on migration routes was discussed, noting that some Dolly Varden migrate up the Peel River, as indicated by the fact that fishers from Fort McPherson harvest this species at a low rate from the "8 mile" fishing location. Thus, Vittrekwa fish (and possibly Dolly Varden from other Peel River tributaries) may be included in the catches from Shingle Point, Aklavik, Husky Channel, Big Eddy, and the mouth of the Rat River. The contributions of these other stocks to catches are not known, but are thought to be low. The harvest levels for Rat River Dolly Varden were discussed, noting that harvests have decreased from the highest level that was recorded in 1972. The resource users agreed that fishing was much better in 1972. The decrease in harvesting since 1972 was thought to be due to a number of factors, including higher water levels in recent years and a reduction in the demand for fish. Others cautioned that the harvest information for the earlier years may refer to round weight rather than the number of fish caught, and thus care should be taken when making comparisons among years. It was suggested that information sources should be provided in Table 1, since the collection of harvest data was not formalized until 1995.

The uncertainty regarding total annual removals (relating to the proportion of Rat River Dolly Varden caught at Shingle Point) should be moved to "Sources of Uncertainty".

It was noted that resource users were frequently referred to as "fishermen". It was agreed that this reference should be changed to "harvesters".

Resource User Perspective

It was noted that this section was perhaps incomplete and the question of further requirements was considered. It was suggested that details of the fishing plan would be better suited in "Management Considerations". Comments about relative fishing levels and what led to development of the fishing plan were suggested as appropriate and relevant for this section. After providing general guidelines for fleshing out this section, it was left for later revision. Ultimately, the revised text that was drafted noted

the importance of the Rat River stock to diet, tradition and culture, and recognized that wise management of the resource was desirable.

Resource Status

Stock Delineation

An overview of taxonomic issues, life history and stock discrimination of Dolly Varden and the closely related Arctic char (Working Paper#4) was provided. It was noted that Dolly Varden are a distinct species from Arctic char. Given that populations of the northern form of Dolly Varden occurring in Canada are the only known representatives of this distinct taxon, care in conservation and management of these particular populations is a priority nationally as well as locally. The presence of distinct spawning stocks that return to natal spawning rivers, the fact that stocks mix at sea, have stock-specific species biology, and are fished by several communities have important management implications. Molecular research shows that Rat River Dolly Varden have greater genetic diversity than expected for an exploited population. One hypothesis proposes that temporally distinct spawning stocks may occur within the river.

Resource users indicated that harvesters from Aklavik are observing more salmon than are normally seen in these waters. This is likely explained by shifting oceanic water masses and the resulting movement of salmon into areas beyond their normal range. It was indicated that this would unlikely have an impact on the Dolly Varden stocks of Rat River.

The Chair asked participants to identify items that could be added or removed, in order that only the key points remained. It was agreed that much of the supporting information could be removed (since it appears in the WP#4). The two key points identified as ones that should remain were: 1) that the northern form of Dolly Varden differs from the southern form, and 2) that the Dolly Varden present in the western Arctic represent the only known populations of this distinct taxon in Canada. Some confusion was expressed by resource users over the terms "stock" and "population". The definitions and use of these two biological units were discussed. It was indicated that the term "stock", as used in the genetic sense, is equal to "population" as used in the biological sense. Stocks can also be used to refer to groups of populations/genetic stocks that are fished. The available scientific information indicates that there are at least six populations (i.e., groups of individuals of one species utilizing the same geographic area) of the northern form of Dolly Varden in Canada. Each of these may contain structuring, based on genetic or environmental differences.

It was agreed that the paragraph describing information on stock mixing along the coast could be removed, with the provision that a line be added to the previous paragraph, indicating that Dolly Varden from the Rat River and other river species form mixed groups at sea during summer feeding. This led to the suggestion that earlier sections of the document regarding "mixed stocks" may require similar revisions. It was also agreed that the paragraphs on otolith microchemistry (line 323) and analyses of mitochondrial DNA (line 338) dealt with material already included in WP#4 and could thus be removed from the SSR.

The information on tag recaptures was also considered key in providing additional evidence for the hypothesis of separate stocks.

Stock Size

The chair suggested that some discussion was required for consensus on stock size. The historical summary of the analysis of fish numbers provided in the draft SSR was considered thorough, but could be summarized into one or a few sentences. It was clarified; that non-Schaefer population estimates of the Rat River Dolly Varden were made using the "Peterson" method and that for the two 1989 population estimates, the first estimate included the juvenile portion of the stock, while the second one did not.

Through their own experience and observation, resource users indicated that there appeared to have been more fish in the 1970s than at the present time. However fishermen generally used smaller mesh nets at that time, and these small mesh nets were essentially abandoned about three years ago. Different fishing techniques were also used during the 1970s (e.g., depth of net, net type). The consensus among resource users was that, overall, there are fewer and smaller fish in the Rat River than

was the case in the 1970's. There does however appear to have been a recovering trend in recent times.

Tagging studies support the hypothesis of increased abundance of Dolly Varden in more recent years. Resource users were uncomfortable with this statement about the Rat River stock because the Big Fish River stock has decreased simultaneously. Their concern was that local fishermen would perceive the increase at the Rat as being displaced Big Fish River fish. Based on tag returns and other scientific knowledge of anadromous Dolly Varden stocks, this concern appears unfounded. Despite this, and despite the fact that there is no scientific evidence for cross movement between these two stocks, not all resource users were convinced of the assumptions upon which this evidence is based. For example, the assumption that uncaptured or undetected radio-tagged fish have simply died somewhere; an alternative explanation is that these fish have moved into other systems.

Stock Trend

There was a general agreement that the stock trend of Rat River Dolly Varden could not be definitively determined from only a single factor. However, there were a number of positive stock indicators, in addition to stock size estimates, that suggest stock trend is stable or maybe even increasing. A review of these indicators was undertaken. Mark-recapture stock size estimates suggest that the population has not changed drastically. Age-frequency distribution information (based on harvest data and seine net data) show broad representation of all age classes and there is no truncation of older age classes. Modal length-at-age has increased since 1983 and appears to be correlated with better growing season, and improved condition. Data provided on modal lengths follows:

1983, weir data – modal lengths 320 and 410 mm
1989 hoop nets – modal lengths 320 mm and 440 mm Stephenson & Lemieux
1995: Fish Hole survey: modal length of silvers, 430 mm; female spawners ~460 mm
1997: Fish Hole survey: modal length of silvers 430 mm; female spawners ~470 mm

It was noted that the Rat River monitoring program provides a long-term record of age, length, maturity and sex of fish caught in the fishery, and daily and monthly CPUE trends. These in turn contribute to the assessment of the stock trend, when used in combination with estimates of stock size and surveys on the spawning/over-wintering site. The monitoring program is the longest running program on this stock and is a window into history. It was agreed that this program was a valuable component of monitoring this stock and may serve more functions in the future, such as investigation into the effect of climate change on fish.

There was a discussion of the impact of growth and environmental factors on population size. It was suggested that the overriding nature of these factors would make it difficult to accurately predict the impact of the fishery on the population in relation to these larger effects.

One of the few indicators of stock status that showed a negative trend was Catch-per-unit-effort (CPUE) for 1999 and 2000. Some participants suggested it was not necessary to include this CPUE data in the SSR, since it is difficult to explain and does not provide any conclusive evidence for changes in stock size. CPUE may vary from year to year for several reasons: population size, weather, timing of fishery (timing of the run), and other environmental factors. For instance, if a fish run occurs later in the season there are often low CPUE values early on and thus the year average is low. In a year where the run is earlier there are fewer low CPUE values overall and thus the year average is higher. It was agreed that it is worthwhile having CPUE information in the SSR, but it should be qualified and should obviously not form the only basis of stock trend.

One other biological indicator of stock trend includes the proportion of current year spawners (relative to silvers or non-spawners). For example, following a highly productive summer in 1998, a higher than usual proportion of the stock spawned in 1999. This was thought to be a response to good conditions in 1998. The sex ratio of the catch has remained biased toward females and has been that way since studies were begun in the 1970's. It was noted that the first sign a stock is in trouble usually comes from the harvesters. Based on comments from the harvesters, the stock is not in obvious decline.

Much of this section was revised or identified for further revision. Elaboration of some of the supporting information was identified as being better suited to WP#7. It was agreed that the paragraph describing the duration and timing of the fishery was not directly relevant to the status of the stock and most of the

detail could be removed. It was noted that the data from figures 4 & 5 required an indication of when different mesh sizes were used. Figure 4 of the draft SSR (mean annual fork length over time) may require clarification since 1999/2000 looks like a recruitment failure. Figure 5 (mean age over time) provides evidence for general stock health but not stock trend.

It was suggested that the instantaneous mortality rates estimated for 2000 for the Rat River stock was more realistic than estimates from other years. Mortality data from other stocks (e.g., Babbage River) indicate that 60% survive, meaning that 40% are removed from the stock each year. This corresponds closely with the 1997estimate of total removal for the Rat River Dolly Varden stock, which shows that 6% of tagged fish end up in the fishery, combined with an estimated 35% mortality.

The question of how much additional research effort is required to estimate the sustainable harvest rate was raised. This is difficult to determine, due to many circumstances, and there remains the need for a long-term consistent approach. It was thought that ongoing research equivalent to the generation time of a fish (e.g., 8-12 years) may be sufficient to obtain reasonable estimates of harvest rate.

Sustainable Harvesting Rate

It was agreed that the content of this section was reasonably complete, although statements about growth rates would fit better in the Resource Status section.

Outlook

It was agreed that the paragraph reviewing the indicators of changes in stock size and age structure could be removed since it was already covered elsewhere in the SSR. There was some discussion as to how much biomass is removed from the stock, but it was agreed that there was little need for concern about the harvest level at this point.

Sources of Uncertainty

It was agreed that uncertainties about stock structure should be added to this section. For example, non-anadromous stocks may exist in the Rat River, thus complicating the data collected in the river. In effect, it is possible that the size of the sea-run stock may be over-estimated. Other uncertainties that should be identified in this section are: 1) The proportion of the Shingle Point harvest assigned to the Rat River stock has not been empirically determined; 2) The use of harvest data prior to 1995, when the monitoring program was first established, should be applied with caution since methods of data collection have clearly evolved since then.

Management Considerations

It was thought that a description of administrative structures would be informative.

Stock composition and the relative contributions of other stocks were identified as important management considerations. More research is required to determine the composition of the stock; there is a need to sample stock structure, including sampling of spawning assemblages, other stocks, and to assess composition and stock structure through genetic and otolith microchemistry analyses. This should not be overstated since it is unlikely that there is a big contribution from other stocks.

Other Considerations

The importance of including the potential impacts of disease in stock assessment was given, noting that disease is frequently an integral part of population decline in wildlife. Disease can affect stock size and productivity. The IPN virus (found in other species as well) was found in the Rat River Dolly Varden and is a potent agent (no human effect), that can probably be transferred among and between stocks. The smaller the stock the greater the danger and potential impact of disease on the stock. Vigilance in monitoring for diseased animals was encouraged. Suspected disease should be reported and samples sent to the Freshwater Institute.

No studies of contaminants have been done on Rat River Dolly Varden.

Smolts carry wounds and appear to be preyed upon extensively by Arctic lamprey; this could be considered for monitoring.

It was thought that over-harvesting was not a major threat to this stock and the statement to this effect in the draft SSR should be removed.

The final paragraph of the draft SSR describing the other species that inhabit the Rat River was moved to the section in Species Biology.

Concluding Remarks

Further revisions, not completely worked out during the meeting, were to be made after the meeting with the intention that they would be included in the revised draft to be sent to participants for review and approval. The target date for distribution of the revised draft of the SSR was the end of February. Four weeks were allotted for comments. Reviewers were identified for Working Papers intended as Research Documents. The meeting was adjourned at noon on February 7.

Appendix 1. A summary description of the Central and Arctic Regional Advisory Process (RAP).

What is RAP?

The Department of Fisheries and Oceans (DFO) has the mandate for the conservation of Canadian marine and freshwater aquatic resources and their habitat. This mandate requires that technical knowledge and advice be provided to management and regulatory agencies within DFO and elsewhere on the conservation requirements for these resources. ***"RAP"*** stands for ***"Regional Advisory Process"*** and is the regional process used to provide peer reviewed information on the status of fisheries and marine mammal resources. The Canadian Stock Assessment Secretariat (CSAS) is the national body that facilitates these regional processes, fostering national standards of excellence, and exchange and innovation in methodology, interpretation, and insight.

The principles that guide the RAP are:

- being timely, responsive and flexible to client needs,
- employing the most appropriate and credible scientific methods,
- providing technical review of scientific and traditional knowledge on a range of resource issues,
- involving resource managers, stakeholders and outside scientific experts in the review process,
- providing a visible and public document trail.

The Regional Advisory Process is DFO driven, and geared to providing a consistent and inclusive approach to resource assessment. Stocks are identified for a stock assessment process by an interactive priority setting process between co-management boards and DFO. The products of the RAP are for client and public consumption, and are to be written in simple language and prepared in a timely manner.

RAP Meetings

RAP meetings are held to provide the scientific basis for the management of the regions' marine and freshwater resources, and their habitat. To this end, a RAP meeting is mandated to:

- review all pertinent scientific data and analyses, and traditional ecological knowledge contributed by participants, and conduct such analyses as may be required to establish the status of stocks and their habitat, and to advise on management of both stocks and habitat;
- provide a forum for discussion of the biology of the stocks and their habitat and of methods for determination of their status, potential yields, safe conservation levels, and response to habitat alteration;
- provide a consensus interpretation of each agenda item wherever possible; where a consensus cannot be reached, the merits and short-comings of alternative interpretations are to be discussed and specified appropriately (see *RAP Documents*);
- present a clear and focused summary of the discussion of the state of knowledge and information relevant to the evaluation of stock status;
- provide documentation of the deliberations and discussions, in the form of draft Stock Status Reports and Proceedings.

Attendance at RAP meetings varies in relation to the issues being discussed and can involve experts from DFO, outside agencies, aboriginal Land Claims boards and committees, resource users, First Nations, stakeholders, universities, and other government departments, who can provide meaningful input to the review process. These participants provide the nucleus of the peer review. As well, meetings are open to any interested party as observers. All participants, except for observers, are allowed to participate in the discussion and formulation of the final products. In order to encourage full participation from participants, the meeting is not open to the media. The chairpersons make the purpose of each meeting clear, what is expected from participants, the place of RAP in the overall management process, and the status of the material under consideration.

Outside scientists or agencies can present papers related to scientific information or traditional knowledge to a RAP meeting for peer review. However, if such a paper is presented to a RAP meeting, the outside scientists are expected to remain at the RAP meeting for the full meeting rather than present the paper in question and then depart. Such papers are to be submitted to the meeting chair two weeks in advance of the meeting with a request that they be peer reviewed at the meeting, and not tabled the day of the meeting with the expectation that it will be peer reviewed.

Routinely, individuals are not paid to attend RAP meetings, however there is a small budget for travel of resource users and/or outside experts who have been invited to the meeting that can be used if needed.

RAP DOCUMENTS

Working Papers

A Working Paper is a DFO Central and Arctic document that has been reviewed by at least one individual, internal and/or external to the RAP, prior to presentation and review at a RAP meeting.

Research Documents

Research Documents are revised Working Papers which have been approved for inclusion in the Canadian Stock Assessment Secretariat (CSAS) Research Document series. Final documents are available to the public from the CSAS.

Stock Status Report

A Stock Status Report (SSR) is a document that contains clear, concise and jargon-free information on the status of the stock. The draft SSRs are submitted by authors to the RAP coordinator for review at least 2 weeks before the scheduled RAP meeting (or four weeks, if translation is required). Draft SSRs are revised based on discussions at the RAP meeting. Where there is more than one interpretation of specific analyses or of overall stock status, the alternative interpretations should be included in the SSR, with a brief presentation of the information supporting or contradicting each alternative. Following the RAP review and approval, SSRs are edited for readability and format. After the editing has been completed, the appropriate Branch Director signs off the report and the report is released. The RAP coordinator publishes and distributes the Stock Status Reports. The electronic form is entered

on the Fisheries and Oceans Canada, Internet site (http://www.dfo-mpo.gc.ca/csas/), as part of the national series co-ordinated by CSAS.

Proceedings

The Proceedings describe the main points of discussion at the RAP meeting. Where there is more than one interpretation of the available data, the Proceedings should present the discussion of evidence supporting or contradicting each alternative, highlight the consequences of the alternatives to the interpretation of stock, habitat or ecosystem status, and, where relevant, identify the proponents of alternative interpretations. Dissenting opinions may be included in the Proceedings as "Minority Statements", included exactly as written by any RAP participant who wishes to submit them.

Appendix 2. Remit for the RAP Meeting on Rat River Dolly Varden

Meeting Remit

The meeting will focus on an evaluation of stock status for the Rat River Dolly Varden; the following topics will be reviewed:

1. Background

- *the context for the review (the reason for a stock status evaluation) and a brief overview of the stock (description of it's range, and it's importance and use as a resource)*

2. Species Biology

- *a short species description (morphology, growth and size) and a brief overview of relevant life history (distribution, movements, reproduction, sources of mortality, and feeding)*

3. The Fishery

- *a description and summary of the fishery, including the total estimated annual harvest*

4. Resource User Perspective

- *a description of the cultural and traditional importance of the resource;*

5. Resource Status

- *review of recent taxonomic and genetic information related to this stock*
- *knowledge of stock-specific data and parameters related to an evaluation of stock delineation, stock size, stock trend, and sustainable fishing rate;*

6. Sources of Uncertainty

- *identification of specific parameters and or stock assessment procedures that may contribute to uncertainty in measures of resource use or resource status;*

7. Outlook

- *a statement on the outlook for the stock, based on a review of it's current status, trend, and foreseeable events;*

8. Management Considerations

- *identification of factors that may affect the management of the fishery, including a review of current fishing and management practices, as well as implications of Fishing Plans already in place (e.g. Rat River Charr Fishing Plan)*

9. Other Considerations

- *other factors that may affect the future health and status of the resource, such as industry, habitat effects, contaminants, and disease*
- *a review of known disease for this stock and general implications for human health*

Appendix 3. Rat River Dolly Varden RAP meeting – Proposed Agenda.

Monday, 5 February 2001

9:00	**Welcome and Opening Remarks**		Larry Dueck
9:05	**Introduction**	**[0 hr 15 min]**	
	• A description of the Regional Advisory Process		Larry Dueck,
	• Overview of the draft documents for review		Susan Cosens
	• Chairperson remarks: review and revise agenda as required		
9:20	**Begin review according to Remit item 1 & 2**	**[0 hr 55 min]**	All
	- Species Biology		Lois Harwood (WP#7)
10:15	***..... 15 minute break .....***		
10:30	**Remit items 3 & 4**	**[1 hr 15 min]**	All
	- The Fishery		
	- Resource User Perspective		
11:30	**Summary of Working Paper #4**		Jim Reist
11:45	***..... lunch break .....***		
12:45	**Remit items 5 & 6**	**[2 hr 00 min]**	All
	- Resource Status		
	- Sources of Uncertainty		
2:45	***..... 15 minute break .....***		
3:00	**Remit items 7 - 9**	**[1 hr 45 min]**	All
	- Outlook		Contribution: Ole
	- Management Considerations		Nielsen
	- Other Considerations		
	- Background		
4:45	**Identify remaining text to be reviewed, issues to be resolved**		
5:00	**Adjourn until Tuesday, if required**		

Tuesday, 6 February 2001

8:30	**Review of any revisions to SSR drafted since yesterday; review of Proceedings notes from previous day**	All
9:00	**Complete discussions of remaining items identified yesterday**	All
10:30	**Adjourn meeting**	
10:30	**Tour of building for northern folks**	

Appendix 4. List of Working Papers for the RAP meeting on Rat River Dolly Varden.

Working Paper #1.	Rat River Fishing Plan (2000)
Working Paper #2.	Biological Data on Arctic Charr... (Gillman and Sparling, 1985)
Working Paper #3.	Stock Status of Arctic Charr in the Rat River (Kristofferson & Baker; AFSAC 1986/87)
Working Paper #4.	Jim Reist summary of taxonomy & genetics (unpub. 2001)
Working Paper #5.	Status of Rat River Charr (unpub. Stephenson, T.; draft report, 1990)
Working Paper #6.	Overwintering habitat of juvenile Dolly Varden... (unpub. rpt; Sandstrom 2001)
Working Paper #7.	Lois Harwood unpub.
Working Paper #8.	Infectious pancreatic necrosis virus: isolation from asymptomatic wild Arctic Char (*Salvelinus alpinus* L.) (Souter et al. 1984)

Appendix 5. Participants List

Participants	Affiliation
Ayles, Burton	FJMC
Babaluk, John	DFO, Science
Carmichael, John	Charr Monitor, Aklavik
Cosens, Susan	DFO, Science
Day, Billy	FJMC
Dueck, Larry	DFO, Science
Francis, Joseph	Fort McPherson RRC
Gordon, Richard	Aklavik HTC
Harwood, Lois	DFO, Science
Kay, Joseph	Fort McPherson RRC
Kristofferson, Al	DFO
McLean, Ed	FJMC
Nielsen, Ole	DFO, Science
Papst, Michael	DFO, Science
Peet, Roger	GRRB
Reist, Jim	DFO, Science
Sandstrom, Steve	External Expert (presently MNR, Ontario)
Stephenson, Sam	DFO
Walker-Larsen, Jennifer	GRRB
Wright, Liz	Tetlit RRC

Observers:

Evans, Cynthia	Contractor
Eddy, Jeff	North/South Consultants
Carmicheal, Theresa	DFO Science